THE GENUS DIOGMITES IN THE UNITED STATES OF AMERICA WITH DESCRIPTIONS OF NEW SPECIES (DIPTERA: ASILIDÆ)

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The genus *Diogmites* Loew contains the species which have been placed in the genus *Deromyia* Phillippi by most writers in this country. Many years ago, Williston expressed the belief that *Diogmites* and *Deromyia* were synonymous and this opinion was followed by most North American authors, in spite of Osten-Sacken's assertion that the two were entitled to at least subgeneric separation. In 1928, Malloch (Notes on Australian Diptera, XIV, Proc. Linn. Soc. N. S. W. liii, 3, p. 299) after a careful examination of the genotypes, declared that *Deromyia* and *Diogmites* were not congeneric, calling attention to the facts that (1) *Deromyia* has only a few microscopic hairs on the ocellar region, while *Diogmites* has there at least two strong bristles; (2) *Deromyia* has the front tibial spur blunt at the apex and opposed to a short ridge or wedge-shaped elevation on the basal portion of the ventral surface of the fore metatarsus, while *Diogmites* has the spur sharp at the tip and resting in a depression surrounded in part by a number of short stout spines; (3) *Deromyia* has the basal two antennal segments subequal in length while *Diogmites* has the basal one much shorter than the second; (4) *Deromyia* has fine hairs above at or just beyond the middle of the third segment, while in *Diogmites* there are hairs on almost the entire basal half of the upper surface; (5) *Deromyia* has the apex of the fourth posterior cell pointed, with the vein closing it at least twice as long as the cross-vein above it, while *Diogmites* has the apex of the fourth posterior cell truncate with the vein closing it as long as the cross-vein above it.

In 1929, Engel (Konowia, VIII, 4) remarking on Coquillet's dictum (Type Species of American Diptera, Proc. U. S. N. Mus., vol. 37, p. 533, 1910) that *Diogmites* equals *Deromyia,* called attention to the fact that *Deromyia gracilis* Philippi bore a cylindrical "griffel" ending in a sharp spine at the tip of the third

antennal segment, whereas *Diogmites* has only a short bristle. In addition, *Deromyia* has the scutellum without bristles, while in *Diogmites* there are two strong bristles on the margin.

I have examined specimens of *D. fuscipennis* (Blanchard) in preparing my paper on the Asilidæ of Patagonia and South Chile (Diptera of Patagonia and South Chile (British Museum (Nat. Hist.) part V-fasc. 3, 265–267, 1932) and at the time came to the conclusion that the two genera were distinct, the slender *Deromyia* being more suggestive of the African *Neolaparus* than our North American *Diogmites.*

GENOTYPES: We should therefore consider the genera distinct: *Deromyia* Phillipi (1865, Verh. zool.-bot. Ges. Wien, 15, 705) of which *gracilis* Philippi (1865, Verh. zool.-bot. Ges. Wien, 15, 705) is the genotype; and *Diogmites* Loew, Cent., VII, 36, 1866 of which *platypterus* Loew, Cent., VII, 36, 1866, is the genotype.

The species of *Diogmites* occurring in the United States are generally rather slender, bare species with the mystax confined to the oral margin. Most are pale yellowish or reddish in color with the long, slender but strong legs bearing coarse bristles. The fourth posterior cell is always closed, usually at a distance from the wing margin. There is generally considerable difficulty in distinguishing the species represented by dried, shrivelled, discolored specimens in a collection. In the field, the distinct colors, different flight habits and ecology render them easy of identification to the collector, but these differences become obscure once the specimen has dried, faded or changed color in an insect cabinet. Fortunately, there is not the dimorphism and dichromatism exhibited by the species of *Saropogon* (*D. discolor* Loew is the only *Diogmites* with which I am familiar that exhibits to any extent a pronounced dichromatism in the sexes). In general it may be said that individuals of *Saropogon* look different but prove to be the same species, while individuals of *Diogmites* look alike but prove to be different!

Specimens of *Diogmites* (in a collection) tend to "grease" which completely obscures the coloration and pollinose condition and renders identification well nigh impossible. In preparing the review of this genus I have not used greased specimens in making descriptions. Determination of any specimen in this

genus should not be attempted until it has been degreased. This may be accomplished by immersing the greased specimen, pin, label and all (do not place a colored label in xylene as this will extract certain constituents from the dye) in xylene or benzene and allowing it to remain there four or five days before removing and drying. This treatment usually restores the color and pollinose condition.

Species of *Diogmites* are frequently very abundant in individuals. They are usually active and voracious and in spite of their fragile appearance will attack and overcome such formidable stinging insects as bees and wasps. In fact, the favorite prey of most species is aculeate Hymenoptera. Some species are quite destructive to honey-bees. It is an interesting sight to watch the capture of a large wasp by a species such as *Diogmites symmachus*. The fly siezes the wasp in flight or picks it off a flower and both fall to the ground, the wasp struggling desperately and trying to make use of its fatal sting. The *Diogmites* clutches its prey with a vise-like grip, holding it off at arms length so the poisonous sting cannot reach its body, and anchors itself with one leg to a stone or plant. The wasp soon becomes exhausted by its struggles and the grip of the fly tightens while, like an octopus, the *Diogmites* slowly draws its victim closer until a rapid thrust of its beak, usually behind the head of the wasp, puts an end to the struggle. In this way the flies are able to conquer bees and wasps larger than themselves.

In Texas *D. symmachus* and *angustipennis* are destructive to honey bees. Other species of more or less importance as enemies of the domestic bees are *D. discolor* in the Central States; *D. umbrinus* in New England; *D. properans, D. salutans, D. esuriens* and *D. neoternatus* in the Southeastern States and *D. grossus* in the arid West. Even the small *D. misellus* was reported as capturing a honey-bee in a letter written to me by Mr. C. S. Brimley of Raleigh, North Carolina.

SYNONYMY

Rufescens Macquart (Hist. Nat. Dipt. I, 295, 1834) and *basalis* Walker (Dipt. Saund., 95, 1856) are undeterminable. It seems quite probable that both are the same as *discolor* Loew (Cent.,

VII, 37, 1866) and if this should be proven *rufescens* would have priority. *Herennius* Walker, List II, 339, 1849, may be the same as *umbrinus* Loew (Cent., VII, 43, 1866), but here again this name should be disregarded as the types of both Walker's *basalis* and *herennius* are lost. *Bilineata* Loew (Cent., VII, 40, 1868) I am unable to distinguish from *discolor* Loew. The former was recorded from Cuba, however, and has not been collected since the type. A paratype of *D. coloradensis* James (Amer. Mus. Novitates 596, 2, 1933) sent to me by Mr. Wilcox is very close to *D. perplexus* Back (Trans. Am. Ent. Soc. XXV, 360, 1909) but I think may be separated on the basis of the color of the fine hairs on the abdomen.

KEY TO THE UNITED STATES DIOGMITES

1. Mesonotum with three velvety-black lines contrasting with the light pollinose condition of the rest of the disc 2
   Mesonotum otherwise, the mesonotal lines where developed not strongly contrasting 8
2. Abdomen more or less coarctate, the constriction coming between the 2nd and 3rd segments 3
   Abdomen not at all coarctate 5
3. Abdomen only slightly coarctate, the median black stripe of the thoracic dorsum distinctly divided its entire length by a thin pale line, abdomen pale reddish-yellow without dark bands above (Florida and neighboring S. E. states) (19–24 mm.) ..... *esuriens* n. sp.
   Abdomen more decidedly coarctate, the median stripe of the thoracic dorsum solid black 4
4. The median thoracic stripe extending black anteriorly to pronotum (Cuban species) (19–22 mm.) ..... *ternatus* Loew
   The median thoracic stripe fading into red anteriorly (Ohio to Nebraska to Texas and Florida) (18–29 mm.) ..... *neoternatus* Bromley
5. Last 3 or 4 abdominal segments, anterior angles and venter black, rest reddish-yellow: median thoracic stripe divided; legs reddish, femora with black stripes above; wings subhyaline; abdomen very stout (Pecos River, N. Mexico) (17.6–20.5 mm.) ..... *hypomelas* Loew
   Abdomen otherwise 6
6. Wings blackish or brownish fumose; proboscis black; reddish species, the median thoracic stripe black to pronotum (Texas) (18–23 mm.) *texanus* Bromley
   Wings grayish hyaline or subhyaline 7
7. Median thoracic stripe fading into red anteriorly, small, slender species (Texas to New England) (14–17 mm.) ..... *misellus* Loew
   Median thoracic black stripe not fading into red anteriorly, wide and

solid black, abdominal tergites with dark bands more or less interrupted (Alabama and nearby S. E. states) (17–22 mm.)
properans n. sp.

8. Abdomen entirely black, thorax blackish-brown; wings black, legs yellowish (Nebraska and Louisiana to Illinois and S. Carolina) (16–20 mm.) ..... *platypterus* Loew

Abdomen reddish or yellowish or if largely blackish with white pruinose lateral spots 9

9. Pronotal bristles black 10

Pronotal bristles yellow or reddish 12

10. Robust species, thorax dark reddish-brown, abdomen rufous with a black oblique line and pale golden spot on each side of segments 2–5 or 6: hairs and bristles of coxæ partly or wholly black (New England to Iowa south to North Carolina and Kentucky) (17–29 mm.)
umbrinus Loew

More slender species, thorax brown with 2 darker closely approximate median lines, abdomen with white pruinose lateral spots, long and slender, mostly black in male, more or less reddish-yellow and blackish in female; hairs and bristles of coxæ pale 11

11. Southern Connecticut, west to Missouri and south to the Carolinas (16–28 mm.) ..... *discolor* Loew

Cuba (not recorded since originally described) ..... *bilineatus* Loew

12. Wings dark (blackish or yellowish-brown) 13

Wings light, subhyaline, sometimes with apex and anal border lightly clouded 15

13. Hypopleural bristles black; wings broad and quite dark colored 14

Hypopleural bristles pale; wings narrower and light yellowish; slender pale reddish species, thorax pale brownish pollinose without definite markings, only light reddish wavy or intersected streaks on the mesonotum; abdomen slender, pale reddish, the genitalia dark brown with reddish and black hairs intermingled (Oklahoma) (24–25 mm.)
pritchardi n. sp.

14. Wings blackish, broad; slender species, yellowish abdomen; thorax light brownish with 2 narrow curved lines medianly, 2 broader lateral vittæ and small spots between lines (Mexico, Arizona, Texas, New Mexico) (19–22 mm.) ..... *sallei* Bellardi

Wings yellowish-fuscous; abdomen robust, brick-red; thorax brownish with markings similar to *sallei;* a large robust species, (Mexico) (30 mm.) ..... *bigoti* Bellardi

15. Palpi black; abdomen slender, cylindrical, almost wholly yellow with only inconspicuous black spots at sides; wings lightly fumose at apex and anal border: (the thoracic stripes in some specimens quite dark) (southwestern species) (15–17 mm.) ..... A and B

A. Pile of abdomen chiefly white ..... *perplexus* Back

B. Pile of abdomen chiefly black ..... *coloradensis* James

Palpi yellowish or reddish 16

16. Abdomen with black bands above (more or less interrupted) (southeastern species) 17
Abdomen reddish or yellowish, sometimes with darker cloudings above but never with decidedly black bands (species from west of Mississippi river) 18
17. Mesonotum with three dark stripes (sometimes almost black), the median stripe divided longitudinally by a thin line, the lateral stripes divided transversely (17–22 mm.) ..... *salutans* n. sp.
Mesonotum without distinct maculations except two thin closely approximate median dark lines: a large, robust species (24–42 mm.) *crudelis* n. sp.
18. Abdomen uniformly pale reddish-yellow, rather short and stout, small species (Arizona and California) (15–21 mm.) ..... *contortus* n. sp.
Abdomen with oblique black lines at sides of several segments 19
19. Abdomen elongate and slender; fragile, delicate species (Rio Grande Valley, Texas) (19–23 mm.) ..... *fragilis* n. sp.
Abdomen robust 20
20. Abdomen with yellowish or whitish sheen (hairs of ♂ genitalia all pale) 21
Abdomen without conspicuous sheen (hairs of ♂ genitalia pale or dark) 22
21. Wings hyaline; abdomen except last 3 or 4 tergites in ♀ with pale yellowish or whitish bloom or sheen; thorax pale golden or whitish pollinose; very large, robust, pale reddish species (Arid regions of west, Colorado to Nevada and Oregon, California and Arizona) (20–38 mm.) ..... *grossus* n. sp.
Wings lightly tinged with brown, narrower than the preceding; thorax larger in proportion to length and abdomen broader at base and tapering more sharply to tip; a golden-brown pollinose species with dark bands over dorsum of abdomen, coloration generally darker than *grossus* (California and Arizona) (26–30 mm.) ..... *pulcher* Back
22. Pale brownish-yellow, rather robust species; wings narrow, hyaline; thoracic dorsum olivaceous; abdomen quite stout, rather wide at base and usually with olivaceous or brownish bands above; male genitalia with a number of black hairs; terminal segments of female abdomen rather broad, making the abdomen appear stout and shorter than in the following (Texas and Louisiana, north to the Dakotas) (17–27 mm.) ..... *angustipennis* Loew
Reddish-yellow, larger but comparatively less robust species; wings usually broader hyaline; abdomen longer and less robust; male genitalia with mostly reddish hairs; terminal segments of the female abdomen more slender than in the foregoing (Texas and Louisiana, north to the Dakotas) (18–32 mm.) ..... *symmachus* Loew

Diogmites esuriens new species

Total length, 19–24 mm. A pale reddish-yellow species, the mesonotum pale golden pollinose with three velvety-black stripes, the median stripe

divided longitudinally by a thin pale line. The abdomen is slender, pale reddish-yellow without dark cloudings or bands over the dorsum, and is slightly coarctate, the constriction coming between the 2nd and 3rd segments. This species is closely related to *neoternatus* and *misellus* and is frequently to be found labelled in collections as *bilineata* or *ternata*.

MALE. Pale reddish-yellow. Head pale golden pruinose. Proboscis black. Antennæ and palpi pale orange. Mystax, beard and hairs of first antennal segment pale straw-colored; palpal hairs and occipital bristles slightly darker yellowish. Ocellars (2) and hairs and bristles of second antennal segment black. Thorax light golden pollinose (the pleura lighter), the mesonotum with three velvety-black contrasting longitudinal stripes, the median bisected its full length by a pale line, the median vittæ bisected transversely. Vertex of head and humeral region more orange than elsewhere on head or thorax. Hairs of prothorax, pleura and coxæ pale yellow; hairs and bristles of mesonotum and hypopleura (in front of halteres) black. The 2 scutellars are black. Legs pale reddish-yellow with fine scattered black hairs and bristles. Wings grayish subhyaline. Halteres yellowish. Abdomen slender, with a slight constriction between the second and third segments, light reddish-yellow, the sides and posterior borders narrowly, pale golden pruinose; a small velvety-black line on the sides of segments 2–6. Genitalia with black and yellow hairs intermingled. The fine, scattered hairs on the dorsum of the abdomen are black, the bristles at the sides of the first segment pale reddish yellow.

FEMALE. Similar, abdomen slightly stouter and even less coarctate. In the holotype and allotype there are two dark spots on the anterior portion of the 2nd abdominal segment, but these are lacking in the male paratopotype.

Holotype, male, Orlando, Fla., V. 13.3. Allotype, female, Agr. Exp. Sta., Gainesville, Fla. (no. E L 355) (J. R. W.). Paratopotype, male, Orlando, Fla., July 23, 1924 (O. C. McBride). Paratypes, males, McBee, South Carolina, Sept. 7–11, 1931 (S. W. Bromley); females, La Grange, Brevard Co., Fla., Sept., 1913 (Wm. T. Davis), Lake Worth, Fla. (two), November 6, 1928 (S. W. Bromley) [In S. W. Bromley collection]; 1 female, Miami, Fla., April 11–21, '23 (F4666C) [Am. Mus. Nat. Hist.]; Alachua Co., Gainesville, Fla., 5 males, 9 females, May 16–Nov. 25 (Coll. T. H. Hubbell, F. W. Walker, J. W. Johnson); Wayne Co., Jesup, Ga., Aug. 30, 1923 (T. H. Hubbell) [Univ. of Mich. Coll.]; Branford, Fla., July 31, 1930 (R. H. Beamer, J. Nottingham, P. W. Oman, L. D. Tuthill), Loughman, Fla. (one female with a large yellow-antennæ *Ceropales*(?) spider wasp as prey), Aug. 2–5, 1930 (R. H. Beamer, J. Nottingham, L. D. Tuthill), Fruitville, Fla., Aug. 11, 1930 (R. H. Beamer, J. Nottingham,

L. D. Tuthill), Waldo, Fla., Aug. 18, 1930 (J. Nottingham), Hilliard, Fla., Aug. 19, 1930 (Paul W. Oman), Lacoochie, Fla., Aug. 18, 1930 (J. Nottingham) [Univ. of Kansas Coll.].

Diogmites properans new species

Total length, 17–22 mm. A rather small, reddish-yellow species with three black contrasting stripes on the mesonotum, the median stripe exceptionally broad, not divided by a yellow line, and the abdomen with blackish bands over the dorsum of the segments. These bands are frequently more or less interrupted. Related to *D. salutans* n. sp. from which it may be distinguished by the presence of contrasting black stripes of the mesonotum, instead of brownish stripes not contrasting, the median of which is divided. This is one of the species frequently labelled as *rufescens* in collections.

MALE. Reddish-yellow, head golden pruinose. Proboscis black, bulb reddish. Palpi and antennæ pale reddish, 3rd segment of antennæ blackish above. Mystax, beard and hairs of first antennal segment pale straw-colored; palpal hairs and occipital bristles slightly darker yellowish. Ocellars (2), hairs and bristles of second antennal segment black. Thorax pale golden pollinose, the mesonotum with three black velvety bands, the median very broad and dark (Under lens it is seen to be bisected very narrowly by a thin dark reddish line), the lateral vittæ divided transversely by a golden line. Fine hairs of pleura, prothorax, and coxæ pale yellow; pronotal and hypopleural bristles reddish. Hairs and bristles of mesonotum black as are the 2 (or 3) scutellars. A black mark on the pleura at the junction of the 2nd and 3rd coxæ. Legs pale reddish-yellow. Halteres dark brown. Wings grayish subhyaline. Abdomen rather short and stout, reddish-yellow, the posterior margins and lateral angles of the segments pale yellow pollinose, each segment with a black band over the dorsum usually fading to brownish or reddish toward the median area, but in some specimens entire. Hairs of genitalia largely black but with a few reddish hairs intermingled.

FEMALE. Similar.

Holotype. Male, Theodore, Ala., June 12, 1917 (R. C. Shannon). Allotype, female, Pass Christian, Harrison Co., Miss., June 14, 1917. Paratopotypes, males (3), females (2). Paratype, female, Mobile, Ala., June 12, 1917 [S. W. Bromley and Cornell Univ. Coll.]; 1 male, 2 females, Gainesville, Fla., Sept. 26–Oct. 2, 1914 [Am. Mus. Nat. Hist. Col.]; Leesburg, Lee Co., Ga., Aug. 19, 1932 (L. N. Gloyd), Everett City, Glynn Co., Ga., June 22, 1930 (C. F. Byers) [Univ. of Michigan Coll.]; Prattsburg, Ga., July 25, 1930 (P. W. Oman and L. D. Tuthill), Tuskegee, Ala., July 22, 1930, one, a female, with small *Bombus* sp. as prey, (R. H. Beamer), Waldo, Fla., Aug. 18, 1930 (R. H.

Beamer), Hilliard, Fla., Aug. 19, 1930 (R. H. Beamer), Coatopa, Ala., July 18, 1930 (R. H. Beamer), Suwanee Springs, July 29, 1930 (R. H. Beamer) [Univ. of Kan. Coll.].

Diogmites crudelis new species

Total length, 24–33 mm. A large, robust, light reddish species, the mesonotum light brown with two dark closely approximate median lines. The abdomen with dark brown or blackish bands over the dorsum. This species was identified by Back and others as *rufescens,* while exceptionally large individuals from Florida were called *bigoti.*

MALE. Reddish-yellow, head pale yellow pruinose. Proboscis black; bulb, palpi and antennæ reddish-orange. Vestiture of head pale yellow or whitish, except ocellar bristles (4) and hairs and bristles of 2nd antennal segment which are black. Thorax pale reddish-brown, yellow pollinose, the mesonotum with two thin dark-brown or blackish, closely approximate median lines. Mesonotal hairs and bristles black. Scutellars, two, black. Pleura, prothorax and coxæ with pale yellow hairs. Hypopleural and pronotal bristles reddish-yellow. Halteres pale brown. Wings brownish subhyaline. Legs pale brownish-yellow. Abdomen reddish with the extreme posterior margins of the segments and lateral angles yellowish pollinose. The dorsum with blackish bands fading into reddish-brown toward the median line in some specimens, complete in others. Genitalia reddish with mostly reddish hairs, a few black intermingled.

FEMALE. Similar.

Holotype, male, Wilmington, N. C., July 14, 1925 (T. B. Mitchell). Allotype, female, McBee, S. C., Aug. 29, 1930 (S. W. Bromley). Paratypes, 5 females, McBee, S. C., Aug. 29–Sept. 2, 1930 (one of these with a large reddish spider wasp, *Arachnophroctonus ferrugineus* Say as prey); Southern Pines, N. C., Sept. 1906 (R. S. Woglum); Pablo Beach, Fla., Sept. 5, (Wm. T. Davis) [in S. W. Bromley Coll.]; Hilliard, Fla., Aug. 19, 1930 (R. H. Beamer), Childs, Fla., Aug. 6, 1930 (two gigantic specimens, 42 mm. in length, with the dark lines on mesonotum almost obsolete) (P. W. Oman) [Univ. Kan. Coll.].

Diogmites salutans new species

Total length, 17–22 mm. A pale brownish-red species with the thoracic stripes brownish, the median of which is narrowly bisected longitudinally by a thin line and the lateral spots divided transversely. The abdomen is robust, reddish with blackish bands extending over the dorsum. These bands are more or less interrupted at the median dorsal line. This species is closely related to *properans* n. sp. and *crudelis* n. sp., all of which in the past have

been erroneously identified as *rufescens*. The present species has been labelled *bilineata* and *symmachus* in collections, also.

MALE. Head golden pollinose. Third antennal segment orange-brown, second with black bristles. Ocellars (4, in some of the specimens only two) black, rest of vestiture of head pale yellow. Proboscis black, palpi brownish. Mystacal bristles almost white. Thorax golden brown pollinose, legs pale brownish yellow. Pronotal bristles pale brownish, sometimes with a few darker bristles intermingled. Hypopleural bristles reddish-yellow. Fine hairs of prothorax, pleura, and coxæ pale yellow. Hairs and bristles of mesonotum black. Scutellars (2) black. Disc of mesonotum with three dark brown stripes, the median distinctly bisected its whole length, the lateral vittæ divided transversely. Wings gray subhyaline. Halteres dark brown. Abdomen stout, reddish, the posterior margins and lateral angles of the segments yellow pollinose, each segment with a broad black band above. These bands may fade into brown or reddish at the middle but become black again on the sides. In other instances, the bands are entire. Genitalia reddish with mostly black hairs, some reddish intermingled.

FEMALE. Similar.

Holotype, male, Elrod, N. C., Sept. 13, 1925 (S. W. Bromley). Allotopotype, female, (S. W. B.). Paratypes; one male, seven females from Jekyll Island, Ga., Sept. 18–19, 1925 (two of the latter with small bumblebees, one with a winged ant, one with a *Tiphia* sp., and one with a female of the same species as prey) (S. W. B.), female, Smithfield, Va., female, Ridgeland, S. C., Aug. 13, 1926 (F. Sherman), female, Meredith, S. C., Aug. 27, 1925 (O. Cartwright), male, Keysville, Burke Co., Ga., June 28, 1930 (C. F. Byers) [in S. W. Bromley Coll.]; female, Sandfly, Savannah, Ga., July 3–14, 1916 (Ac 4849), female, Deen Wood, Waycross, Ga., July 16–18, 1916 (Ac 4849), male, Homestead, Fla., April 18, 1923 (F4673) [Am. Mus. Nat. Hist. Coll.]; two males, four females, Alachua Co., Fla., May 20–July 24, (Alexander, Walker, and Everts), Fort Lauderdale, Fla., July–Aug. 19 (D. M. Bates), female, Rock Bluff Landing, Liberty Co., Fla., July 29, 1925 (T. H. Hubbell), female, Newberry Co., S. C., June 30, 1930 (C. F. Byers) [Univ. Mich. Coll.]; 22 specimens from the following, Lacoochie, Fla., Aug. 18, 1930 (J. Nottingham and R. H. Beamer), Plant City, Fla., Aug. 15, 1930 (R. H. Beamer), Deerfield, Fla., Aug. 6, 1930 (R. H. Beamer and J. Nottingham), Waldo, Fla., Aug. 18, 1930 (R. H. Beamer and L. D. Tuthill) (a female with small dragon-fly *Sympetrum* ?, as prey) Hilliard, Fla., Aug. 19, 1930 (L. D. Tuthill and P. W. Oman), Fruitville, Fla., Aug. 11,

1930 (L. D. Tuthill), Shuquiaiak, Miss., July 16, 1930 (R. H. Beamer), Tuskegee, Ala., July 27, 1930 (R. H. Beamer), Prattsburg, Ga., July 25, 1930 (P. W. Oman) [Univ. Kan. Coll.]

This species may eventually prove to be only a variety of *D. properans.*

Diogmites contortus new species

Total length, 15–21 mm. A small, pale yellowish species from the southwest, the abdomen short and stout without black markings. The mesonotum is pale yellowish-brown with three pale longitudinal markings, only slightly darker than the rest of the mesonotum.

MALE. Head pale yellow pollinose. Palpi, antennæ and bulb of proboscis pale reddish-yellow. Rest of proboscis black. All bristles and hairs of head and antennæ yellowish (mystax very pale) except the two ocellars which in the holotype are yellow, but in the others dark reddish to brownish. Thorax pale yellow pollinose, all hairs and bristles of prothorax, pleura (including hypopleural bristles) and coxæ pale yellow. Hairs and bristles of mesonotum black. Scutellars (2) black. Disc with three pale brownish-yellow broad lines over which the pollen of the thorax does not extend. Wings, short, gray subhyaline. Halteres pale brownish-yellow. Legs pale brownish-yellow. Abdomen short and stout, pale reddish-yellow without black markings, simply a faint brown oblique line barely visible at the sides of the segments of some specimens. Genitalia with pale reddish hairs.

FEMALE. Similar.

Holotype, male, Yuma, Arizona, June 23, 1925 (S. W. Bromley). Allotopotype, female, same date (S. W. B.). Paratopotypes, a male and a female, same date (S. W. B.) [in S. W. Bromley Coll.]. Paratypes, 4 females, Blythe, Calif., Aug. 20, 1927 (Lot 542 sub 327) [Cornell Univ. Coll.].

In the field this species has a pronounced golden yellow appearance as it flies about near the ground with a thin high-pitched buzz. The males and possibly the females were observed to carry the abdomen doubled under the thorax during flight, giving the fly the appearance of a more robust asilid such as *Mallophora.*

Diogmites fragilis new species

Total length, 19–23 mm. A reddish, very slender species from the lower Rio Grande valley of Texas, with narrow wings and elongate, slender abdomen, the genitalia bulbous and considerably wider than the seventh segment. The pleura and sides of the abdomen are whitish pruinose and pollinose. The hairs of the genitalia are largely black. Related to *angustipennis,* from which it may be distinguished by its more slender build and slender, elongate abdomen.

MALE. Head very pale yellow pollinose. Mystax pale straw-colored. Antennæ reddish, palpi brown, proboscis black. Beard white. Occipital bristles and palpal hairs sordid yellowish. Thorax pale reddish brown, pleura silvery gray pollinose. Hypopleural bristles very fine, yellowish, other hairs of pleura and coxæ sordid whitish. Mesonotum with broad reddish brown stripes, the hairs and bristles black. Scutellars (2) black. Wings narrow, subhyaline, grayish toward apex. Halteres brown. Legs long, slender, reddish brown. Abdomen elongate, slender, reddish-brown, the sides and borders of the segments whitish pollinose. A blackish, oblique line at the side of each segment. Genitalia dark brown with dark brown and black hairs, bulbous, wider than seventh segment.

FEMALE. Similar, but with wings less hyaline.

Holotype, male, Donna, Texas, Sept. 3, 1933 (J. W. Monk). Allotype, female, Kingsville, Texas, Oct. 19, 1935 (G. M. Kohls), [in C. B. Philip Coll.]. Paratopotype, male, same date as holotype (J. W. Monk), [in S. W. Bromley Coll.].

Diogmites grossus new species

Total length, 28–38 mm. A very large, robust species of the arid west, reddish-yellow with a whitish or pale yellowish bloom or sheen, the wings hyaline. Closely related to *symmachus*, from which it may be distinguished by the larger size and the whitish sheen of the abdomen and thorax. This species is usually found in collections labelled *bigoti*.

MALE. Head yellowish white pollinose. Mystax and beard pale yellowish-white. Palpi and antennæ pale orange-brown. Ocellars (2), occipital bristles and palpal hairs pale sordid yellow. Thorax pale reddish-brown covered with a pale whitish or yellowish sheen, the three mesonotal stripes showing through as darker. Hairs and bristles of prothorax, pleura and coxæ whitish. Hypopleural and pronotal bristles pale yellow. Mesonotal bristles and scutellars (2) black. Some of the fine bristles on the posterior median part of mesonotum yellow. Legs pale reddish. Wings long, hyaline. Halteres pale brownish. Abdomen long, robust, pale reddish covered thinly with a whitish sheen. A faint dark oblique line discernible on the sides of the segments of some of the specimens. Genitalia pale brownish with light hairs.

FEMALE. Similar. Last three or four tergites without the whitish sheen. The paratype from Utah is paler than the Colorado specimens and the ground color lighter reddish-yellow.

Holotype, male, Lamar, Prower Co., Col., Aug. 25, 1925 (F. M. Gaige). Allotopotype, female, same data. Paratype, female, near Midvale, Utah, July 26, 1913 (Timberlake), female, Grand Co., Moab, Utah, Sept. 2, 1929 (L. K. Gloyd) [in S. W. Bromley Coll.]; female, White Rock, near Boulder, Col., Aug. 13, 1919

(F4410), female, Wray, Col., Aug. 17–19, 1919 (F4411D) [Am. Mus. Nat. Hist. Coll.]; 3 males, 3 females, Lamar, Prower Co., Col., Aug. 25–27, 1925 (F. M. Gaige), 2 females, Zion Nat'l. Park, Kane Co., Utah, Aug. 20, 1932 (C. J. D. Brown), female, Moab, Grand Co., Utah, Aug. 17, 1929 (L. K. Gloyd), female, Lemoore, Calif., Sept. 22, 1922 (L. R. Dice) [Univ. Mich. Coll.]; 19 specimens, Parma, Idaho, Aug. 4–19, 1934 (C. H. and Dorothy Martin) (a male in this series dated Aug. 19, 1934, with a honey-bee as prey) [J. Wilcox Coll.]. Male, with worker *Vespa occidentalis* as prey, Phoenix, Ariz. 1929 [Col. State College Coll.].

Diogmites pritchardi new species

Total length, 24–25 mm. A pale reddish species related to *D. sallei,* from which it may be distinguished by the pale hypopleural bristles and the narrower and paler wings. The thoracic markings are somewhat similar but are paler and indefinite consisting of two pale reddish closely approximate median lines, separated by a pale pollinose line which is bisected by a median row of brownish dots; the lateral vittæ are bisected transversely; and between the median lines and lateral vittæ there is on each side a wavy row of brownish dots.

MALE. Head whitish pollinose, vertex and occiput showing the pale reddish ground color. Beard and mystax white. Proboscis black. Antennæ and palpi orange with dark orange hairs and bristles. Thorax pale reddish, whitish pollinose on pleura and coxæ. Hairs and bristles of sides pale; supra-alars and scutellars black. Thorax whitish pollinose above, the mesonotum with markings described above. Hypopleural bristles pale. Wings yellowish, pale brownish toward tip and along posterior border. Halteres pale reddish. Abdomen long, slender, pale reddish. Genitalia blackish-brown with blackish and reddish bristles intermingled. Legs pale reddish with black bristles.

FEMALE. Similar.

Holotype, male, Alfalfa Co., Okla., Aug. 9, 1932 (A. E. Pritchard). Allotopotype, female, same data. [In S. W. Bromley Coll.]. Paratype, Aransas Co., Texas, Aug. 6, 1928 (Jack Beamer). [Univ. Kansas Coll.].